

A new *Granulifusus* (Gastropoda: Fasciolariidae) from Japan

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ABSTRACT. *Granulifusus pulchellus* sp. nov. is a species well-known among Japanese conchologists under the name 'nunome-ko-naganishi', which means 'cloth-texture small *Fusinus*' in Japanese language. Late Shoichiro Hayashi proposed the name '*pulchellus*' in one of his manuscripts, but this was never published. We describe the species herein and compare it to *G. musasiensis* (Makiyama, 1922) and *G. makiyamai* (Otuka, 1937) from the Japanese Pleistocene.

INTRODUCTION

An ongoing study to the identity of Indo-West Pacific Fusininae, and *Granulifusus* in particular, has brought to light a number of species which are seldom seen or hitherto undescribed. Among them a small species from Japan, already well known under the Japanese name 'nunome-ko-naganishi'. Except from the manuscript name '*pulchellus*', proposed by the late Shoichiro Hayashi, it never received a valid scientific name. We describe it in the present paper as *Granulifusus pulchellus* sp. nov. separating it from other Recent species by its small adult size with a lower number of whorls, and other differences in shell morphology. Two small closely resembling species from the Japanese Pleistocene are compared: *G. musasiensis* (Makiyama, 1922) and *G. makiyamai* (Otuka, 1937). The present work is based on material obtained by gill nets of Japanese fishermen. The method of Verduin (1977) was used to count the number of protoconch whorls.

Abbreviations

ANSP: Academy of Natural Sciences, Philadelphia, USA
MC: Collection of Mitsuo Chino, Kawasaki, Japan
NSMT: National Science Museum, Tokyo, Japan
RH: Collection of Roland Hadorn, Lyss, Switzerland
dd: dead collected specimen
juv: juvenile or subadult specimen

SYSTEMATICS

Family FASCIOLARIIDAE Gray, 1853
Subfamily FUSININAE Wrigley, 1927

Genus *Granulifusus* Kuroda and Habe, 1954

Type species: *Fusus niponicus* E.A. Smith, 1879 (by monotypy) (= *Granulifusus* Kuroda and Habe, 1952, a *nomen nudum*).

Granulifusus pulchellus sp. nov.

Figs. 1-9

Type material. Holotype NSMT-Mo 73715 (18.4 x 8.5 mm, lv), Japan, Tokyo Bay, Chiba Prefecture, off Kanaya, 200 m.

Paratype 1, MC (17.4 x 7.3 mm, dd), Japan, Kyushu, Oita Prefecture, off Kamae, 100 m. - Paratype 2, RH (13.6 x 6.2 mm, dd), Japan, Wakayama Prefecture, off Cape Shio, 33°24' N, 135°47' E, 300 m. - Paratype 3, ANSP 413200 (16.9 x 7.4 mm, dd), Japan, Kyushu, Oita Prefecture, Kamae - Paratype 4, MC (19.1 x 8.1 mm, lv), Japan, Sagami Bay, Kanagawa Prefecture, off Misaki, 250 m. - Paratype 5, RH (16.9 x 7.2 mm, lv), Japan, Sagami Bay, Kanagawa Prefecture, off Misaki, 250 m.

Type locality. Japan, Tokyo Bay, Chiba Prefecture, off Kanaya, 200 m.

Other material examined. Japan, Chiba Prefecture, 150 m, 1 lv juv. - Chiba Prefecture, 1 lv / 2 lv juv. - Shizuoka Prefecture, 150 m, 1 dd juv. - Wakayama Prefecture, Kii, Cape Shio, 33°24' N, 135°47' E, 300 m, 2 dd / 1 dd juv. (all MC).

Description. Shell small for genus, up to 20 mm in length, consisting of about 6 convex whorls including protoconch, light brown to brown with a whitish band

in the middle of the whorls, delicate and thin, fusiform, spire broad, angle about 40–44°. Siphonal canal rather short. Suture constricted.

Protoconch white to light brown, consisting of 1 ½ bulbous, smooth, glossy whorls. Final ¼ whorl with about 3–5 fine axial riblets. Transition to teleoconch abrupt, marked by a distinct varix. Diameter 0.9–1.0 mm.

Four sharp primary spiral cords on upper teleoconch whorls, 5 on latter whorls. Cords prominent when crossing axial ribs, weak in interspaces, giving surface a typical granulate appearance. A fine intercalated spiral thread appears between primary cords from third whorl on. Mature specimens with up to 3 intercalated threads on body whorl.

Axial ribs broad, reaching from suture to suture, conspicuously close-set, interspaces usually narrow. 12–14 ribs on upper whorls, 12–16 on body whorl.

Aperture white, ovate, pointed at both ends. Outer lip simple, with some weak internal lirae. Inner lip smooth, fully mature specimens with traces of a weak columellar fold.

Siphonal canal shorter than aperture length, occasionally curved. Outer side ornamented with fine, dense spiral cords.

Periostracum unknown.

Operculum typical of genus, light brown, ovate, not filling the aperture.

Radula (Fig. 9) typical of genus. Central tooth tricuspid, cusps strong and pointed, projecting below the base. Base convex, broader than top. Lateral teeth curved, with 5 strong pointed cusps with slightly incurved tips. Outermost cusp strongest and broadest. At inner side with a small denticle.

Range and habitat. Central to southwestern Japan, from Honshu, Chiba Prefecture to Kyushu, Oita Prefecture, 100–300 m deep (taken alive in 100–250 m).

Remarks. *G. pulchellus* sp. nov. differs from all other known Recent Japanese *Granulifusus* species by its conspicuous small adult size, the small number of teleoconch whorls, the broad spire angle, the yellowish banded pattern, the numerous close-set, rather weak axial ribs in combination with sharp spiral cords producing elongate white or yellowish knobs, and the short siphonal canal.

G. musasiensis (Makiyama, 1922) from the Japanese Pleistocene differs by its larger adult size, the larger number of teleoconch whorls, and by having only 3 distinct spiral cords on teleoconch whorls. For the illustration of this species we refer to Taki and Oyama (1954: pl. 3, fig. 7).

G. makiyamai (Otuka, 1937), also from the Japanese Pleistocene, differs by having a somewhat larger adult size, a larger number of teleoconch whorls, and 2 protoconch whorls. For an illustration of this species we refer again to Taki and Oyama (1954: pl. 22, fig. 11).

Etymology. ‘*pulchellus*’ is the manuscript name proposed by late Shoichiro Hayashi for this little delicate Japanese *Granulifusus*.

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Figures 1–9

1–2. *Granulifusus pulchellus* sp. nov., Holotype NSMT-Mo 73715, Japan, Tokyo Bay, Chiba Prefecture, off Kanaya, 18.4 mm; **3–4.** Paratype 1, MC, Japan, Kyushu, Oita Prefecture, off Kamae, 17.4 mm; **5–6.** Paratype 2, RH, Japan, Wakayama Prefecture, off Cape Shio, 13.6 mm; **7–8.** Paratype 4, MC, Japan, Sagami Bay, Kanagawa Prefecture, off Misaki, 19.1 mm; **9.** Radula, holotype NSMT-Mo 73715, scale bar: 100 µm.

